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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,943	11/07/2001	Parthapratim De	I-2-173.1US	1105
24374	7590	01/24/2006	EXAMINER	
VOLPE AND KOENIG, P.C. DEPT. ICC UNITED PLAZA, SUITE 1600 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103			WILSON, ROBERT W	
			ART UNIT	PAPER NUMBER
			2661	

DATE MAILED: 01/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/052,943	Applicant(s) DE ET AL.	
	Examiner Robert W. Wilson	Art Unit 2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-106 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 1-37, 50-73 and 92-106 is/are allowed.
- 6) ☒ Claim(s) 38-49, 74, 77, 79, 80, 83, 85, 86, 89 and 91 is/are rejected.
- 7) ☒ Claim(s) 75-76, 78, 80-82, 84, 87-88, & 90 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 November 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/27/05, 8/9/02, & 6/16/04</u> | 6) <input type="checkbox"/> Other: _____ |

Drawings

1. The drawings are objected to because Figure 1 has element numbers but does not have element names. The examiner recommends adding element names to Figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re*

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Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 38-49 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 respectively of copending Application No. 10/080,045. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Referring to claims 38 & 42 of application 10/052, 943, claim 1 of 10/080,045 teaches: CDMA base with the means for receiving. Claim 1 of 10/080,045 does not expressly call for a method or a means for receiving. It would have been obvious to one of ordinary skill in the art at the time of the invention that the base with means for receiving would perform a method of receiving. It would have been obvious to one of ordinary skill in the art at the time of the invention that the CDMA base with receiving means would be performed in an apparatus or mean of receiving.

In Addition:

Referring to claims 39 & 43 of application 10/052, 943, claim 2 of 10/052,943

Referring to claims 40 & 44 of application 10/052,943 limitations are taught by claim 3 of application 10/080,045

Referring to claims 41 & 45 of application 10/052,943 limitations are taught by claim 4 of application 10/080,045

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Referring to claim 46 of application 10/052, 943, claim 5 of 10/080,045 teaches: CDMA base means for receiving. Claim 5 of 10/080,045 does not expressly call for: CDMA receiver. It would have been obvious to one of ordinary skill in the art at the time of the invention implement a CDMA receiver if one knows the apparatus or CDMA base with means for receiving.

In Addition:

Referring to claim 47 of application 10/052,943 limitations are taught by claim 6 application 10/080,045

Referring to claim 48 of application 10/052,943 their limitations are taught by claim 7 of application 10/080,045

Referring to claim 49 of application 10/052,943 their limitations are taught by claim 8 of application 10/080,045

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

4. Claims 74, 77, 79-80, 83, 85-86, 89, & 91 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1,5,8-9,13, & 16 of copending Application No. 10/080,099. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Referring to claims 74 & 80 of application 10/052, 943, claim 1 of 10/080,099 teaches: CDMA base with means for receiving. Claim 1 of 10/080,099 does not expressly call for: a method or CDMA receiver. It would have been obvious to one of ordinary skill in the art at the time of the invention that the apparatus or receiving means performs a method. It would be obvious to one

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of ordinary skill in the art at the time of the invention that a receiving means could be implemented as a receiver.

In Addition:

Referring to claims 77 & 83 of application 10/052,943 their limitations are taught by claim 5 of application 10/080,099

Referring to claims 79 & 85 of application 10/052,943 their limitations are taught by claim 8 of application 10/080,099

Referring to claim 86 of application 10/052, 943, claim 9 of 10/080,099 teaches: CDMA base for receiving. Claim 9 of 10/080,099 does not expressly call for: a CDMA receiver

It would have been obvious to one of ordinary skill in the art at the time of the invention for a CDMA base for receiving to have a receiver.

In Addition:

Referring to claim 89 of application 10/052,943 their limitations are taught by claim 13 of application 10/080,099

Referring to claim 91 of application 10/052,943 their limitations are taught by claim 16 of application 10/080,099

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

5. Claims 1-37 & 50-73 are allowed.

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The following is an Examiner's statement of reasons for allowance:

Claims 1-37 & 50-73 are considered allowable since when reading the claims in light of the specification, none of the references of record alone or in combination disclose or suggest the combination of limitations specified in the independent claims including:

“using a factor from the first element determination to determine remaining elements of the spread data vector; and estimating data of the data signals using the determined elements of the spread data vector” as specified in claim 1.

“means for using a factor from the first element determination to determine remaining elements of the spread data vector; and means for estimating data of the data signals using the determined elements of the spread data vector” as claimed in claim 8.

“a single user detection device for determining a first element of a spread data vector using the combined signal samples and the estimated channel response and for using a factor from the first element determination to determine remaining elements of the spread data vector; wherein data of the data signals is estimated from the spread data vector” as claimed in claim 14.

“selecting a subblock of the cross correlation matrix; determining a Cholesky factor for the subblock; extending the Cholesky factor, determining the spread data vector using the extended Cholesky factor, a version of the channel response and the samples; estimating data of the data signals using the spread data vector” as claimed in claim 20.

“means for selecting a subblock of the cross correlation matrix means for determining a Cholesky factor for the subblock means for extending the Cholesky factor means for determining the spread data vector using the extended Cholesky factor, a version of the channel response and the samples and means for estimating data of the data signals using the spread data vector” as claimed in claim 26.

“ a single user detection device for determining a cross correlation matrix using the estimated channel response; for selecting a subblock of the cross correlation matrix, for determining a Cholesky factor for the subblock, for extending the Cholesky factor and for determining the spread data vector using the extended Cholesky factor, a version of the channel response and the samples; and wherein data of the data signals is estimated from the spread data vector” as claimed in claim 32.

“determining a cross correlation matrix using the estimated channel response; determining the spread data vector using order recursions by determining a first spread data estimate using an element from the cross correlation matrix and recursively determining further estimates using additional elements of the cross correlation matrix; and estimating data of the data signals using the spread data vector” as claimed in claim 38.

“determining a column of a channel correlation matrix using the estimated channel response; determining a spread data vector using the determined column, the estimated channel response,

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the received combined signal and a fourier transform; and estimating data of the data signals using the spread data vector” as claimed in claim 50.

“means for determining a column of a channel correlation matrix using the estimated channel response; means for determining a spread data vector using the determined column, the estimated channel response, the received combined signal and a fourier transform, and means for estimating data of the data signals using the spread data vector” as claimed in claim 58.

“a single user detection device for determining a column of a channel correlation matrix using the estimated channel response, and for determining a column of a channel correlation matrix using the estimated channel response, and for determining a spread data vector using the determined column, the estimated channel response, the received combined signal and a fourier transform; and wherein data of the data signals is estimated from the spread data vector” as claimed in claim 66.

“determining a padded version of a spread data vector of a size corresponding to the multiple chip rate using a column of the channel response matrix, the estimated channel response matrix, the samples and a fourier transform; estimating the spread data vector by eliminating elements of the padded version so that the estimated spread data vector is of a size corresponding to the chip rate” as claimed in claim 92.

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“means for determining a padded version of a spread data vector of a size corresponding to the multiple chip rate using a column of the channel response matrix, the estimated channel response matrix, the samples and a fourier transform; means for estimating the spread data vector by eliminating elements of the padded version so that the estimated spread data vector is of a size corresponding to the chip rate” as claimed in claim 97.

“a single user detection device for determining a padded version of a spread data vector of a size corresponding to the multiple chip rate using a column of the channel response matrix, the estimated channel response matrix, the samples and a fourier transform, and for estimating the spread data vector by eliminating the elements of the padded version so that the estimated spread data vector is a size corresponding to the chip rate” as claimed in claim 102.

In addition:

Claims 2-7 are allowed because they depend upon claim 1.

Claims 15-19 are allowed because they depend upon claim 14.

Claims 27-31 are allowed because they depend upon claim 26.

Claims 39-41 are allowed because they depend upon claim 38.

Claims 51-57 are allowed because they depend upon claim 50.

Claims 59-65 are allowed because they depend upon claim 58.

Claims 67-73 are allowed because they depend upon claim 66.

Claims 93-96, 100-101, & 104 are allowed because they depend upon claim 92.

Claims 98 & 99 are allowed because they depend upon claim 97.

Claims 103 & 105-106 are allowed because they depend upon claim 02.

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The closest prior art is Vollmer (U.S. Patent No.: 6,064,689) and Dell-Imagine (U.S. Patent No.: 5,517,688). Vollmer teaches: a code division receiver in a mobile which receives a combined data signals over shared spectrum, samples the combined signal, estimates the channel response for the combined signal, and determines the cross correlation matrix using the estimated channel response per col. 2 line 22-col. 3 line 38 and per col. 4 line 47-col. 5 line 24 respectively. Dell-Imagine teaches: sampling the combined signal at multiple chip rates per col. 1 lines 22-25.


Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert W. Wilson whose telephone number is 571/272-3075. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau T. Nguyen can be reached on 571/272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


BOB PHUNKULH
PRIMARY EXAMINER


Robert W Wilson
Examiner